

Notice of Allowability

Application No.

10/083,502

Examiner

John J. Tabone, Jr.

Applicant(s)

TAMURA ET AL.

Art Unit

2138

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 02/01/2006.
2. ☒ The allowed claim(s) is/are 1-5 and 8-13.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


GUY LAMARRE
PRIMARY EXAMINER

DETAILED ACTION

1. Claims 1-5 and 8-13 remain pending in the current application.
2. The Examiner has withdrawn the 35 U.S.C. 112, first and second paragraph rejections due to Applicant's amendment filed 02/01/2006.

Response to Arguments

3. Applicant's arguments, filed 02/01/2006, with respect to independent claims 1, 2, 8, 9 and 13 have been fully considered and are persuasive. The rejections in the Non-Final Office Action of 11/01/2005 have been withdrawn. Also, the Examiner favors the allowance of claims 1-5 and 8-13.

Allowable Subject Matter

Claims 1-5 and 8-13 are allowed.

The following is an Examiner's Statement of Reasons for Allowance:

The present invention relates to a memory card having a non-volatile memory mounted thereon, and a memory controller which is applied to a non-volatile memory card, and in particular to a technology which is effective to apply to a memory card having a hard disc compatible flash memory mounted thereon.

The claimed invention as set forth in claim 1 (broadest claim) recites features such as: A memory card having a plurality of non-volatile memories and a memory controller for controlling operation of said plurality of non-volatile memories, wherein

said memory controller performs an access control of said plurality of non-volatile memories in response to an external access instruction, and an alternation control for substituting a storage area of an access error-related non-volatile memory with another storage area;

each of said plurality of non-volatile memories includes a plurality of sectors, a first sector of which stores management information used for performing said alternation control thereon, said alternation control being performed individually for each of said plurality of non-volatile memories;

and said memory controller causes said plurality of non-volatile memories to operate for parallel access in said access control, and issues addresses, of which a first address is for a first non-volatile memory and a second address is for a second non-volatile memory,

wherein said memory controller controls issuing said addresses, such that said first address and said second address indicate same location sectors, when both of said sector of said first non-volatile memory indicated by said first address and said sector of said second non-volatile memory indicated by said second address are valid, and

wherein said memory controller controls issuing said addresses, such that said first address and said second address indicate different location sectors, when said sector of said first non-volatile memory indicated by said first address is valid and a sector of said second non-volatile memory on same location of said sector of said first non-volatile memory indicated by said first address is invalid.

The prior arts of record teach if either of a corresponding pair of non-volatile memory locations 732, 733 is determined to be defective, then the whole memory block 727 is declared to be defective as indicated by the value in the defect flag location 756 being set, and the defective block can no longer be used; Estakhri et al. (US-6202138) is one example of such prior arts.

The prior arts of record, however, fail to teach, singly or in combination, that the *memory controller* controls issuing the first address and second address such that they indicate different location sectors, when the sector of the first non-volatile memory indicated by the first address is valid and a sector of the second non-volatile memory on same location of the sector of the first non-volatile memory indicated by the first address is invalid. In other words, the *memory controller* creates an alternative storage area for each of the non-volatile memories in which an access error occurs in an alternation control mode. Briefly, when one sector data is divided into even and odd bytes, which are dispersed to the first and second non-volatile memories, alternate area management tables for alternation controls are provided for each of the first and second non-volatile memories. When an access error occurs, for example, in the even byte data of the sector data, the sector address of the even byte data in the first non-volatile memory is alternated with other sector addresses of the alternate area and the original sector address of the second non-volatile memory is allocated to the odd byte data in which no access error occurs. As such, modification of the prior art of record to include the claimed *memory controller* can only be motivated by hindsight reasoning, or by changing the intended use and function of the prior art themselves. Therefore, it is not

clear that one of ordinary skill in the art at the time of the invention would have made the necessary modifications to the prior art of record to encompass the *memory controller* set forth in the present application. Moreover, none of the prior arts of record, taken either alone or in combination, anticipate nor render obvious the *memory controller* as set forth in claim 1. Independent claims 2, 8, 9 and 13 recite similar limitations with respect to the *memory controller* and, therefore, are allowed for the same reasons as claim 1 above. Hence, claims 1-5 and 8-13 are allowable over the prior arts of record.

The Examiner agrees with the Applicant's arguments with regard to this feature in view of the arts of record; therefor, the Examiner favors the allowance of claims 1-5 and 8-13. Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

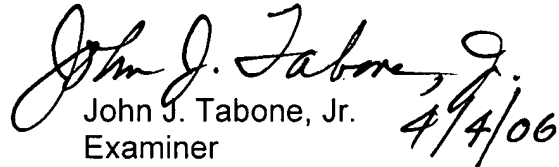
Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Tabone, Jr. whose telephone number is (571) 272-3827. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John J. Tabone, Jr.
Examiner
Art Unit 2138
4/4/06


GUY LAMARRE
PRIMARY EXAMINER